

REMARKS/ARGUMENTS

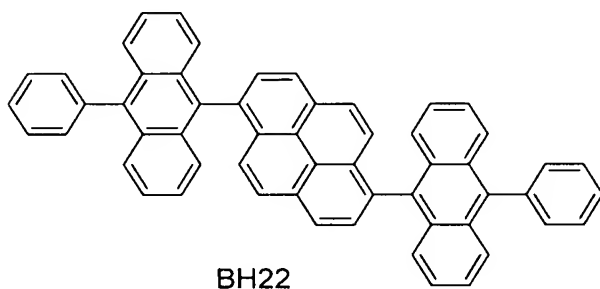
The specification is amended to properly group compounds.

Claims 13-20 are new.

Support for amended Claim 1 is found at original Claims 4-7, the contents of which are incorporated into Claim 1 excepting, where found in original Claims 4-7, the phrase “may be two or more” and any text directly accompanying the phrase. Amended Claims 2-3 and 8-12 are supported respectively, for example, at original Claims 2-3 and 8-12. New Claims 13-14 are supported, for example, at original Claim 8. New Claims 15-20 are supported, for example, at specification Example 1, pages 68-70.

No new matter is added.

The specification objection to page 33, paragraph 34, is obviated by amendment of specification paragraph 35 describe that Compounds BH21, BH22, BH27, and BH28 are examples of compounds represented by any one of the general formulae (VI) –(IX); and Compounds BH23-BH26 are examples of compounds represented by compounds of the general formulae (I) – (IV). Applicants respectfully note that Compound BH22,



, that contains a pyrene nucleus, is properly grouped under compounds of the general formula (VI)-(IX), all of which contain a pyrene nucleus. Withdrawal of the objection is requested.

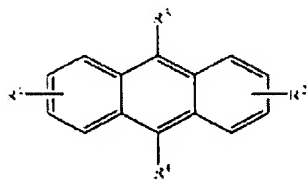
The indefiniteness rejection of Claims 5 and 7 is traversed. In Claims 5 and 7 the phrase “may be two or more” and its directly associated terms are deleted. Withdrawal of the rejection is requested.

The anticipation rejection of Claims 1-3, 8 and 12 as being anticipated by Hatwar is traversed. Claims 4-7 were not found to be anticipated by Hatwar. The features of Claims 4-7, minus, where found, the phrase “may be two or more” and its directly associated terms, are incorporated into Claim 1. Accordingly, Claim 1 is not anticipated by Hatwar.

The obviousness rejection of Claims 4 and 5 as being unpatentable over Hawtar and Shi is traversed. Present Claims 4 and 5 depend from present Claim 1. Present Claim 1 is drawn to a white color organic electroluminescence device comprising a cathode; an anode; and one or more organic thin film layers sandwiched between the two electrodes and comprising at least a light emitting layer. The light emitting layer has a laminate comprising a bluish color light emitting layer and a yellow-to-reddish color light emitting layer; and the light emitting layer comprises an asymmetric compound comprising a condensed ring as enumerated in Claim 1.

The Office, at page 6 of the Official Action, acknowledges “Hatwar does not teach a white color organic electroluminescence device, wherein the asymmetric compound containing a condensed ring comprises an asymmetric anthracene-based compound represented by the general formulae (I)-(IV).” Accordingly, the Office relies upon Shi to provide an asymmetric compound containing a condensed ring.

Shi is drawn to “an organic multilayer electroluminescent device” (see the Abstract of Shi). Shi’s device includes “an anode and cathode, and including therebetween, a hole transport layer... wherein the hole transport layer includes an organic compound having the formula:

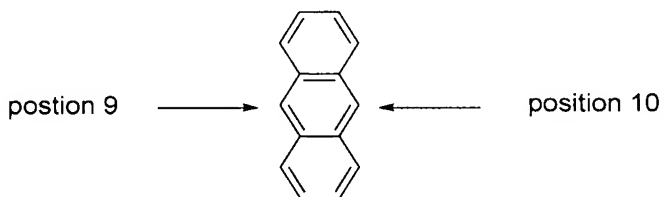


wherein:

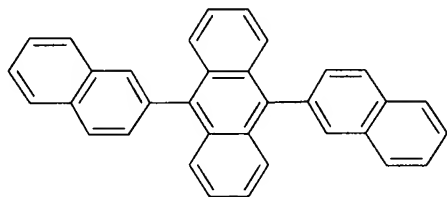
substituents R^1 , R^2 , R^3 and R^4 are each individually hydrogen, or alkyl of from 1 to 24 carbon atoms; aryl or substituted aryl of from 5 to 20 carbon atoms; or heteroaryl or substituted heteroaryl of from 5 to 24 carbon atoms, or fluorine, chlorine, bromine, or cyano group.

” (emphasis added, see the Abstract of Shi). However, Shi’s hole transport layer does not act as an emissive layer, as demonstrated by, for example, paragraph 30 of Shi that describes “[t]he hole transport layer in accordance with the present invention effectively works with the electron transport layer or an emissive layer or an electron transport layer which also functions as an emissive layer to provide a highly efficient electroluminescent device” (emphasis added). Thus, Shi’s anthracene compound is employed in Shi’s hole transport layer that is not an emissive layer. Accordingly, Applicants submit the Office has provided insufficient motivation to take the anthracene compound of Shi, remove the anthracene compound from a hole transport layer, and place it into an emissive layer, as the Office is attempting to do. Withdrawal of the obviousness rejection is requested on this basis alone.

Further, the majority of Shi’s anthracene species are symmetrically substituted at positions 9 and 10 of the anthracene ring:

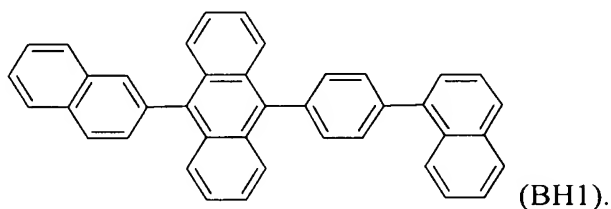


Indeed at page 21, Table 1, in Examples 11-16, when Shi employs anthracenes in Shi's hole transport layer, the anthracenes are symmetrically substituted at positions 9 and 10 of the anthracene ring (e.g., Compounds 26, 9, 20, 21, 39 and 43). For example, Compound 26 of Shi is reproduced below, and Compound 26 is symmetrically substituted at anthracene positions 9 and 10:



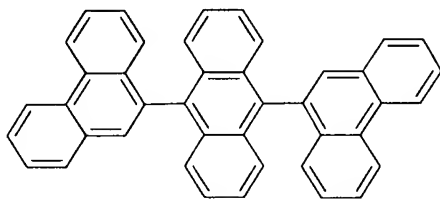
(26). Similarly, at page 22, paragraph 101, Table

II, where Shi employs anthracenes in Shi's hole transport layer, the anthracenes are symmetrical (e.g., Compounds 26, 21, 43). Thus, one of ordinary skill in the art, in reading Shi, would recognize that anthracenes which are symmetrically substituted at positions 9 and 10 are preferred by Shi. In contrast, Applicants have found that anthracenes with unsymmetrical substitution at positions 9 and 10 perform better than 9, 10 symmetrical substituted anthracenes in electroluminescence devices. For example, compound BH1, reproduced below, an asymmetrical 9,10 substituted anthracene, was employed as the asymmetric compound containing a condensed ring in Example 1 at specification pages 68-70:



(BH1).

In contrast, in Comparative Example 2, the compound bh1 was employed and bh1 is symmetrically substituted at positions 9 and 10 of the anthracene ring:

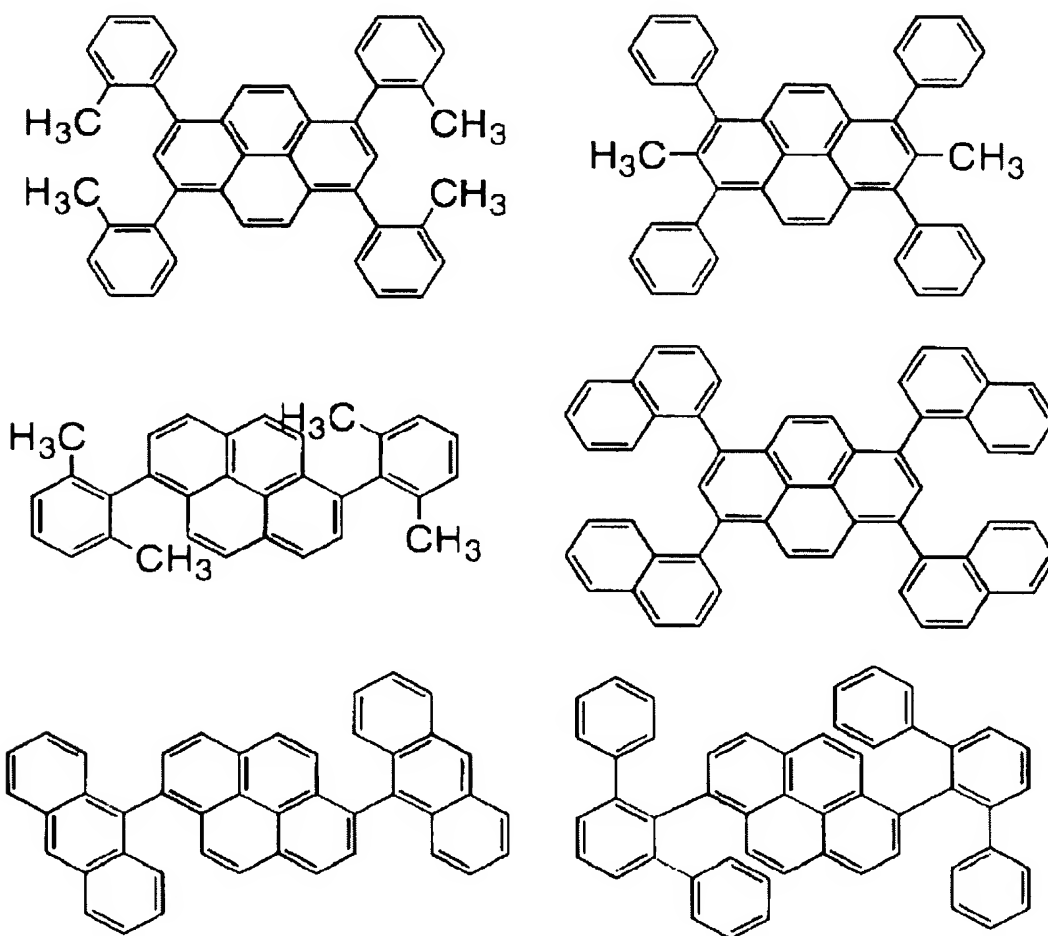


(bh1).

As described in Table 1, paragraph 86, specification page 77, the half life of the device employing BH1 (of the inventive embodiments) was 28,000 hours; in contrast, the device employing bhi (not of the inventive embodiments) had a half life of only 13,000 hours. In addition, the Retention of Luminance after 500 hours, a measure of thermal stability, was 93% for the device employing BH1 (of the inventive embodiments) but only 85% for the device employing bhi (not of the inventive embodiments). These superior results are not described or suggested by Hatwar or Shi. Accordingly, based on Hatwar and Shi, these superior results are also unexpected results. Applicants submit these superior and unexpected results are exactly the type of secondary consideration envisioned by the M.P.E.P. to address a *prima facie* case of obviousness. Withdrawal of the rejection is requested.

The obviousness rejection of Claims 6 and 7 as being unpatentable in view of Hatwar and Kohama is traversed. The Office, at page 9 of the Official Action, acknowledges that “Hatwar does not teach a white color organic electroluminescence device, wherein the asymmetric compound containing a condensed ring comprises an asymmetric pyrene-based compound represented by the following general formulae (V)-(IX).” The Office therefore relies upon Kohama to provide a species falling within formulae (V)-(IX). M.P.E.P. § 2144.08, in describing the proper evaluation for a genus/subgenus obviousness rejection, describes in part, that “Office personnel should determine whether it would have been obvious to one of ordinary skill in the relevant art ... to select the claimed species or subgenus from the disclosed prior art genus.” § 2144.08 further describes, in part, that the Office should “consider any teachings of a “typical,” “preferred,” or “optimum” species or

subgenus within the disclosed genus.” Paragraph 24 of Kohama describes “[a]s an organic fluorescent substance which has the above-mentioned pyrene skeleton, the following structures [e.g., the structures in paragraphs 25 and 26] are specifically raised” (emphasis added). The pyrenes in paragraphs 25 and 26 are symmetric. To reinforce this point, the pyrenes of paragraph 26 are reproduced below:



Thus, one of ordinary skill in the art, in reading Kohama, would recognize that symmetrical pyrenes are preferred by Kohama, and would not be motivated to select, from a large genus, a compound found in present Claims 6 and 7. Withdrawal of the obviousness rejection is requested.

The obviousness rejection of Claim 8 as being unpatentable over Hatwar and Hosokawa is traversed. Present Claim 8 depends indirectly from present Claim 1. As described, *supra*, Hatwar does not describe or suggest all of the features of present Claim 1, including at least the compounds featured in present Claim 1; Hatwar therefore does not anticipate or render obvious present Claim 1. Hosokawa, whom the Office relies upon to teach that “an electroluminescence device comprising a styryl amine in the light emitting medium exhibits excellent heat resistance, long life and a higher efficiency” (see page 12 of the Official Action) does not cure the deficiencies of Hatwar. Withdrawal of the obviousness rejection is requested.

The obviousness rejection of Claims 9-11 as being unpatentable in view of Hatwar and Fukuoka I is traversed. As described, *supra*, Hatwar does not describe or suggest all of the features of present Claim 1, including at least the compounds featured in present Claim 1; Hatwar therefore does not anticipate or render obvious present Claim 1. Fukuoka I, whom the Office relies upon to provide “a white organic electroluminescence device...comprising the anode...the bluish color light emitting layer..the yellow-to-reddish color light emitting layer...and the cathode in this order, wherein the yellow-to-reddish color light emitting layer contains the same host material as that of the bluish color light emitting layer and a yellow-to reddish color dopant for the purpose of producing a white color organic electroluminescence device with increased luminous efficiency and better white luminescence” (see pages 13-14 of the Official Action) does not remedy the deficiencies of Hatwar. Withdrawal of the obviousness rejection is requested.

The obviousness rejection of Claims 1-5 and 8-12 as being unpatentable in view of Fukuoka II and Shi is traversed. The Office, at page 16 of the Official Action, acknowledges that “Fukuoka '928 does not teach the light emitting layer comprising an asymmetric compound containing a condensed ring” (see page 16 of the Official Action). The Office

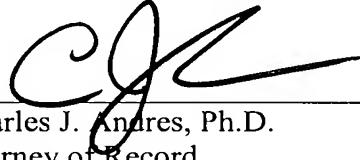
therefore relies upon Shi to provide the asymmetric compound containing a condensed ring. As described, *supra*, Shi's anthracene compound is employed in Shi's hole transport layer that is not an emissive layer, and the Office has provided insufficient motivation to take the anthracene compound of Shi, remove the anthracene compound from a hole transport layer, and place it into an emissive layer, as the Office is attempting to do. Further, as described *supra*, Applicants have presented superior and unexpected results that address a *prima facie* case of obviousness that relies upon Shi to provide the compounds described in present Claim 1 (as is the case in this obviousness rejection). Withdrawal of the obviousness rejection is requested.

The obviousness-type double patenting rejection of Claims 1 and 8-12 as being unpatentable over Claims 9, 12-13 and 15 of Fukuoka II and Hatwar is traversed. Present Claim 1 requires specific asymmetrically substituted compounds. The Office acknowledges that "Fukuoka '928 does not claim the light emitting layer comprising an asymmetric compound containing a condensed ring" (*see* page 23 of the Official Action). The Office therefore relies upon Hatwar to teach at least the asymmetrically substituted compounds featured in present Claim 1. As described, *supra*, Hatwar does not describe or suggest the compounds featured in present Claim 1. Accordingly, Claims 9, 12-13 and 15 of Fukuoka II and Hatwar, either alone or in combination, do not describe or suggest all of the features of present Claim 1 and the claims depending therefrom. Withdrawal of the obviousness-type double patenting rejection is requested.

Applicants submit the present application is now in condition for allowance. Early notification to this effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.
Richard L. Treanor, Ph.D.



Charles J. Andres, Ph.D.
Attorney of Record
Registration No. 57,537

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 07/09)